

April 14, 2003  
KES Project #01-1480-2

Ms. Laurie Apecechea  
San Diego County DEH  
Land and Water Quality Division  
Post Office Box 129261  
San Diego, California 92112-9261

Subject: Groundwater Monitoring Report  
3<sup>rd</sup> and 4<sup>th</sup> Quarter 2002  
Bannister Steel, Inc.  
3202 Hoover Avenue  
National City, CA 91950  
Unauthorized Release #H08382-001

Dear Ms. Apecechea:

As consultants to Bannister Steel, Inc., **Kahl Environmental Services (KES)** has been authorized to submit the following Groundwater Monitoring Report pertaining to the unauthorized release at the subject property (Figure 1). This report presents groundwater sampling activities performed during the 3<sup>rd</sup> and 4<sup>th</sup> quarter 2002 sampling events. This groundwater assessment was to continue the characterization of groundwater conditions at the subject site following the onsite soil mitigation/excavation efforts. Due to the excavation activities conducted between July and November 2001, monitoring wells MW-2 and MW-4 and observation well OW-1 were destroyed. All existing site wells (MW-1, MW-3, and MW-6 through MW-9) were assessed this quarter, with the exception of well MW-10, since it was not accessible due to obstruction from a trailer parked on top of the well.

### **Item 1: Groundwater Level Measurements**

The previously existing observation well (OW-1) and four monitoring wells (MW-1 through MW-4) were surveyed in March 1997 relative to an arbitrary elevation established as 20 feet at the top of well casing MW-4. Wells MW-6 and MW-7 were surveyed relative to the top of well casing MW-4 in January 1999 and wells MW-8 through MW-10 in April 1999. No well MW-5 ever existed. Topographic maps of the site vicinity (Figure 1) indicated the site is at approximately 10 feet above mean sea level. In order to compare site groundwater conditions to regional hydrologic conditions, San Diego Bay, Paradise Creek, and Sweetwater River, the arbitrary elevation was re-established to 10 feet at the top of well casing MW-4. All prior water levels were recalculated to reflect this change.

However, in order to be in compliance with recent State Water Quality Control Board regulations for Assembly Bill 2886 and GeoTracker requirements, KES conducted a new survey of all site wells to the Mean Sea Level (MSL) datum using a licensed land surveyor on March 11, 2002. Current and all future water level data will be presented with the MSL datum. Refer to Table 1 for a summary of well construction data and Table 2 for a cumulative summary of groundwater level measurements. Groundwater levels ranged from 1.54 feet (MW-1) to 1.85 feet (MW-3) above MSL elevation for the 3<sup>rd</sup> quarter 2002, and 1.67 feet (MW-1) to 1.97 feet (MW-3) above MSL elevation for the 4<sup>th</sup> quarter 2002.

## **Item 2: Groundwater Gradient**

An interpretation of the groundwater gradient in the vicinity of the site monitoring wells is illustrated on Figures 2 and 3. The average hydraulic gradient is approximately 0.005 ft/ft (feet of vertical drop per foot of horizontal run) to the south-east for the western portion of the site and approximately 0.0007 ft/ft to the southwest for the eastern portion of the site for both the 3<sup>rd</sup> and 4<sup>th</sup> quarters 2002. The estimated gradients are based on water level measurements and 3-point interpolation between the monitoring wells.

## **Item 3: Sample Collection Methods**

Well purging and sample collection procedures were conducted in accordance with the 2002 San Diego County SA/M Manual guidelines. Kahl Environmental Services' standard sampling procedures are presented in Appendix A of this report. All wells exhibited fast recovery as defined in the County SA/M Manual (>80 percent recovery within two hours). A total of approximately 330 gallons of water was purged from the wells (for the 3<sup>rd</sup> and 4<sup>th</sup> quarter 2002 sampling events) prior to sampling and placed in labeled DOT-rated 55-gallon drums for temporary on-site storage pending laboratory results and proper disposal by a state-licensed transporter (refer to Appendix C for the waste manifests).

## **Item 4: Laboratory Data, Chain-of-Custody, Analytical Methods**

The laboratory report and Chain-of-Custody documentation for samples collected during these two quarters are presented in Appendix B. A compilation of the current and previous groundwater analytical results is tabulated in Tables 3 and 4.

A State-certified laboratory performed all laboratory analyses. Groundwater samples were tested for the presence of Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX), Methyl-Tertiary-Butyl-Ether (MTBE), Di-Isopropyl Ether (DIPE), Tertiary-Amyl-Methyl-Ether (TAME), Ethyl-Tertiary-Butyl-Ether (ETBE), and Tertiary-Butyl-Alcohol (TBA) by EPA Method 8260B, and Total Petroleum Hydrocarbons (TPH-gasoline range) by CA DHS Method 8015 (Table 3). Additionally, groundwater samples were analyzed for various chemical and physical parameters associated with biodegradation processes to enable evaluation of natural attenuation processes at the site. The specific Remediation by Natural Attenuation (RNA) parameter testing includes: pH, Dissolved Oxygen, Nitrate-Nitrite-N, Sulfate, Sulfide, and Total Iron (Table 4).

## **Item 5: Figures**

Enclosed figures include:

Figure 1: Site Plan

Figure 2: Groundwater Gradient Map (3rd Quarter 2002)

Figure 3: Groundwater Gradient Map (4th Quarter 2002)

Figure 4: Benzene Impact Map (3rd Quarter 2002)

Figure 5: Benzene Impact Map (4th Quarter 2002)

## **Item 6: Phase-Separated Product**

No phase-separated product was observed in or recovered from the groundwater monitoring wells at the subject site during the current quarterly sampling.

## **Item 7: Laboratory Quality Assurance/Quality Control (QA/QC)**

To determine the validity of the laboratory's performance during sample analyses, the QA/QC laboratory results have been reviewed. All QA/QC sample results were within acceptable criteria for the sampling events with two exceptions (Appendix B). The RPD and/or percent recovery for the December 2002 Sulfate QC spike sample could not be accurately calculated due to the high concentration of analyte present in the sample. The spike recovery was outside acceptable limits for the December 2002 Total Sulfide MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptable limits showing that the laboratory was in control and the data was acceptable.

## **Item 8: Findings**

Groundwater levels increased in elevation in all site monitoring wells when comparing the 3<sup>rd</sup> to the 2<sup>nd</sup> quarter 2002 data. Water levels increased an average of +0.19 foot, increasing between +0.16 foot (MW-6) to +0.21 foot (MW-8). Similarly, groundwater levels increased in elevation in all site monitoring wells when comparing the 4<sup>th</sup> to the 3<sup>rd</sup> quarter 2002 data. Water levels increased an average of +0.13 foot, increasing between +0.12 foot (MW-3, MW-7, and MW-9) to +0.14 foot (MW-8).

Groundwater level contours (Figure 2) indicate that the average groundwater gradient magnitude and southeasterly direction for the western portion of the site has remained approximately the same when comparing the 3<sup>rd</sup> to the 2<sup>nd</sup> quarters of 2002 and the 4<sup>th</sup> to the 3<sup>rd</sup> quarters of 2002. Historically, the groundwater gradient magnitude and direction beneath the western part of the site has remained approximately the same since 1997. Beneath the eastern part of the site, both the gradient magnitude and the southwesterly direction have remained approximately the same since the same quarterly comparisons as stated above. Water levels and groundwater gradients beneath the site are potentially influenced by the Sweetwater River to the south, Paradise Creek to the west, and the unnamed tributary to Paradise Creek to the north.

Benzene was detected above the laboratory-estimated quantitation limit (EQL) of 1 micrograms per liter (µg/l) in one (a concentration of 34 µg/l in well MW-7) of the six wells sampled during the 3<sup>rd</sup> quarter 2002 (Table 3 and Appendix B). Benzene concentrations decreased in two wells (MW-1 and MW-7) when compared to the 2<sup>nd</sup> quarter 2002. The benzene concentration in well MW-7 is above the Maximum Contaminant Level (MCL) of 1 µg/l. An interpretive benzene plume map is presented in Figure 4 for the 3<sup>rd</sup> quarter 2002. Benzene concentrations continue to remain below the EQL in wells MW-3, MW-6, MW-8, and MW-9.

Benzene was detected above the laboratory- EQL of 1 µg/l in one (a concentration of 37.5 µg/l in well MW-7 which slightly increased since the previous quarter) of the six wells sampled during the 4<sup>th</sup> quarter 2002 (Table 3 and Appendix B). The benzene concentration in well MW-7 is above the MCL of 1 µg/l. An interpretive benzene plume map is presented in Figure 5 for the 4<sup>th</sup> quarter 2002. Benzene concentrations continue to remain below the EQL in wells MW-1, MW-3, MW-6, MW-8, and MW-9.

TPH concentrations were detected above the laboratory EQL of 20 µg/l in three of the six wells sampled during the 3<sup>rd</sup> quarter 2002 (Table 3 and Appendix B). TPH concentrations increased in one well (MW-3) and decreased in one well (MW-7) when compared to the 2<sup>nd</sup> quarter 2002. Detectable TPH concentrations ranged from 22 µg/l (MW-6) to 256 µg/l (MW-7). TPH concentrations continue to remain below the EQL in wells MW-1, MW-8, and MW-9.

TPH concentrations were detected above the laboratory EQL of 20 µg/l in one of the six wells sampled during the 4<sup>th</sup> quarter 2002 (Table 3 and Appendix B). TPH was detected in well MW-7 at a concentration of 316 µg/l. TPH concentrations increased in one well (MW-7) and decreased in two wells (MW-3 and MW-6) when compared to the 3<sup>rd</sup> quarter 2002. TPH concentrations are below the EQL in wells MW-1, MW-3, MW-6, MW-8, and MW-9.

Trace concentrations of Toluene, Ethylbenzene, and Total Xylenes were detected in wells MW-3, MW-6, and MW-7 during the 3<sup>rd</sup> and 4<sup>th</sup> quarters of 2002, which are all below the MCLs of 150, 700, and 1,750 µg/l, respectively.

MTBE, DIPE, ETBE, TAME, and TBA concentrations were not detected above the respective laboratory EQLs in all wells sampled during the 3<sup>rd</sup> and 4<sup>th</sup> quarters of 2002 with one exception. TBA was detected in wells MW-1 and MW-7 at concentrations of 81 and 69 µg/l, respectively during the 3<sup>rd</sup> quarter 2002 sampling event.

Dissolved Oxygen concentrations for the 3<sup>rd</sup> quarter 2002 ranged from 1.0 milligrams per liter (mg/l) in wells MW-6 and MW-8 to 1.5 mg/l in the remaining four wells. pH ranged from 6.75 pH units in well MW-1 to 7.58 pH units in well MW-9. Total Iron concentrations ranged from 0.39 mg/l in well MW-8 to 3.3 mg/l in well MW-9. Sulfate concentrations ranged from 896 mg/l in well MW-6 to 1,850 mg/l in well MW-9. No Sulfide and Nitrate-Nitrite concentrations were detected above the EQLs in the wells sampled during the 3<sup>rd</sup> quarter 2002.

Dissolved Oxygen concentrations for the 4<sup>th</sup> quarter 2002 ranged from 1.0 mg/l in wells MW-6 and MW-7 to 2.0 mg/l in wells MW-3 and MW-9. pH ranged from 6.92 pH units in well MW-1 to 7.68 pH units in well MW-9. Total Iron concentrations ranged from 0.54 mg/l in well MW-8 to 13.0 mg/l in well MW-6. Sulfate concentrations ranged from 862 mg/l in well MW-8 to 1,670 mg/l in well MW-9. Nitrate was detected at a concentration of 0.18 mg/l in well MW-6. No Sulfide concentrations were detected above the EQL in the wells sampled during the 4<sup>th</sup> quarter 2002.

## **Item 9: Interpretation and Conclusions**

The 3<sup>rd</sup> and 4<sup>th</sup> quarter 2002 samplings indicate that groundwater at the site continues to be impacted with dissolved concentrations of gasoline-type petroleum hydrocarbons. Benzene-impacted groundwater with concentrations greater than 1 µg/l originally extended approximately 280 feet along a northwest-southeast axis. Geologic observations made during remedial excavation identified a broad, sand-filled paleo-channel about 18-24" thick buried at approximately 10 feet below ground surface. The axis of the channel is northwest to southeast. The orientation of this channel appears to coincide with the observed distribution of dissolved-phase hydrocarbons suggesting that the buried channel is acting as a conduit for contaminant migration. Much of the channel has been excavated on the Bannister Steel portion of the site; however, the channel extends southeastward directly beneath the Hyperbaric facility. Current analytical data indicate that the plume extends approximately 160 feet to the southeast onto the adjacent Hyperbaric Technologies property, however, it appears to be stable or contracting slightly.

To date, following remedial excavation, Benzene concentrations dropped to below laboratory reporting limits in all wells except MW-7. Well MW-7 is located down gradient on the Hyperbaric site within the footprint of the buried paleochannel. MW-7 has indicated a continuous decline from a high of 280 µg/l (March 2001) to the current concentration of 37.5 µg/l. Benzene concentrations in down-gradient well MW-1 have decreased to below the EQL of 1 µg/l during the 3<sup>rd</sup> and 4<sup>th</sup> quarter sampling periods.

Groundwater parameters indicate that aerobic conditions exist in the subsurface. Enough dissolved oxygen and nitrate are present for aerobic degradation to be possible. The sulfate concentrations suggest an influence from sea water. The absence of sulfide further suggest aerobic conditions are sufficient to support degradation processes without reverting to secondary energy sources such as sulfate reduction.

## **Item 10: Recommendations**

Per KES' pre-approved workplan, two wells (MW-2 and MW-4) were planned for reinstallation, however, based on the current conditions where benzene occurs in only one well, at relatively low concentrations (37.5 µg/l), no MTBE is present in groundwater, and the observed distribution of the groundwater plume appears stable if not retracting, we currently believe it is not necessary to reinstall the proposed wells. Additionally, since benzene concentrations in groundwater have declined from several thousand µg/l prior to remedial excavation to less than 50 µg/l now, it appears that source removal and natural attenuation are mitigating the residual dissolved-phase plume. Based on these observations, KES recommends closure of existing site wells and no further action following site demobilization. We are submitting a formal request for no further action under separate cover which will present full documentation of our request.

If you have any questions regarding this report or require additional information, please contact our office at (619) 797-1200.

Respectfully,  
**Kahl Environmental Services**

Reviewed by:

Simon Loli, M.S.  
*Associate Hydrogeologist*

Scott S. Fenby, R.G. #5885  
*Principal Environmental Geologist*

cc: Mr. Matthew Parker, Bannister Steel, Inc.

## APPENDIX A

### Standard Monitoring Well Sampling Procedures

#### a. Well Purging and Water Volume Calculation Procedures.

Prior to the purging of groundwater from a monitoring well, the well status was assessed by checking for free-floating (phase-separated) petroleum products and measuring depth to bottom and depth to groundwater. If free product had been present in a well, the thickness, depth to product, and apparent type of product would have been recorded.

Groundwater depths were measured using an electronic water level indicator calibrated to two-hundredths of a foot and interpolated to the nearest one-hundredth of a foot. The surveyed reference points on the well casings have been permanently marked for future measurement consistency. The water level probe was thoroughly decontaminated between wells using a solution of Alconox detergent and tap water followed by two tap water rinses.

The following calculations were performed to measure the volume of groundwater in a given well:

The Water Column (WC) = DTB - DTW,  
where: DTB = Measured Depth to Bottom of Well Casing,  
and DTW = Measured Depth to Water

Casing Volume (CV) =  $\pi r^2(WC)$   
where: r (casing radius) = 0.16667'

Annulus Volume (AV) =  $(\pi R^2(WC) - CV)(\rho)$   
where: R (borehole radius) = 0.41667'  
 $\rho$  (porosity) = 0.3

Well Volume (WV) = AV + CV (in cubic feet)  
where: 1 ft<sup>3</sup> = 7.48 gallons

Monitoring wells observed not to contain free-floating petroleum product were individually purged by pumping water from the well using a double-diaphragm, air displacement pump. The pump resided on the ground surface with the extraction hose attached to dedicated polyethylene tubes ("stingers") extending down the wells into the water column. Wells exhibiting slow recharge, as defined in the 2002 San Diego County SA/M Manual, were purged one well volume and allowed to recharge for up to two hours before collecting a water sample. Fast recharging wells were allowed to recharge to 80% of their original water column height before collecting a water sample. Fast recharging wells were purged of approximately 1.5 well volumes of groundwater as field water-

quality measurements (temperature, pH, and specific conductance) were recorded per SA/M manual protocol.

**b/c. Sample Collection Methods/Equipment.**

After purging, the purge equipment was removed from the well and each well was sampled. Water samples were collected using a single-use, polyethylene, and disposable bailer. The bailer was lowered by hand on a nylon cord and allowed to fill with water. Water samples were collected by carefully transferring the water into three 40-ml Volatile Organic Analysis (VOA) vials (two for analysis, one replicate sample for backup) with Teflon-lined caps using techniques to minimize aeration or agitation of the sample. To preclude the entrapment of air in the vials, each container was filled and lightly tapped to dislodge any air bubbles adhering to the sides and then overfilled to form a meniscus of water rising over the top of the rim. The tops were placed on the containers expelling excess water. The containers were then inverted to check for air bubbles. The used bailer and cord were discarded following each well sampling.

**d. Decontamination Procedures.**

All re-usable equipment was thoroughly cleaned between sampling events using a solution of Alconox detergent and water followed by two tap water rinses. Only new disposable equipment and materials (hose, bailers, etc.) were utilized for sampling and purging.

**e. Quality Assurance/Quality Control.**

Water samples were collected in VOA vials and submitted to the state-certified laboratory for analysis. All handling of bailers, hose, and samples was performed using fresh pairs of disposable vinyl gloves.

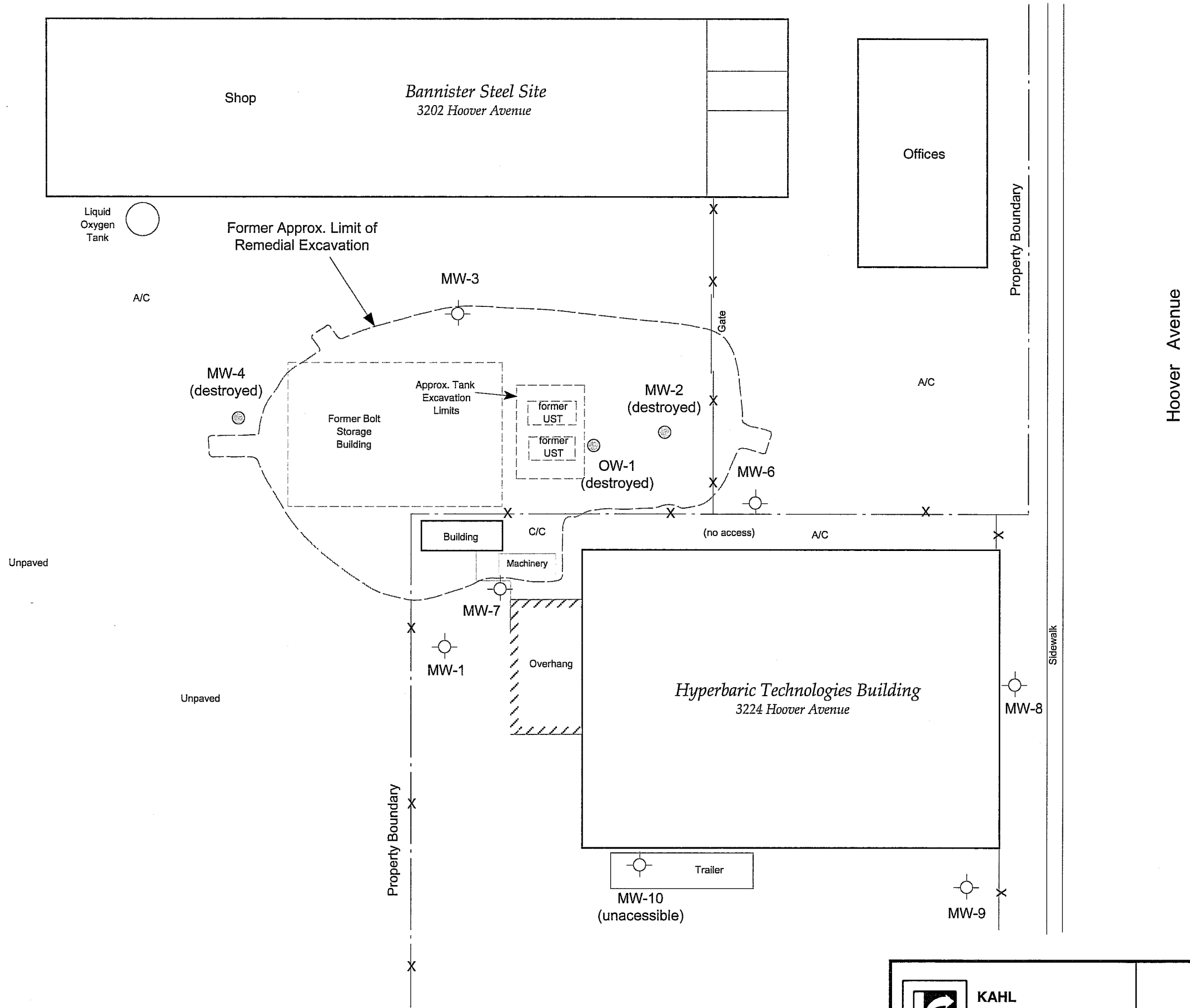
**f. Sample Preservation.**

A certified laboratory provided sample containers. Vials were pre-cooled to prevent warming of the samples. Each water sample was placed in an ice chest containing “blue ice”.

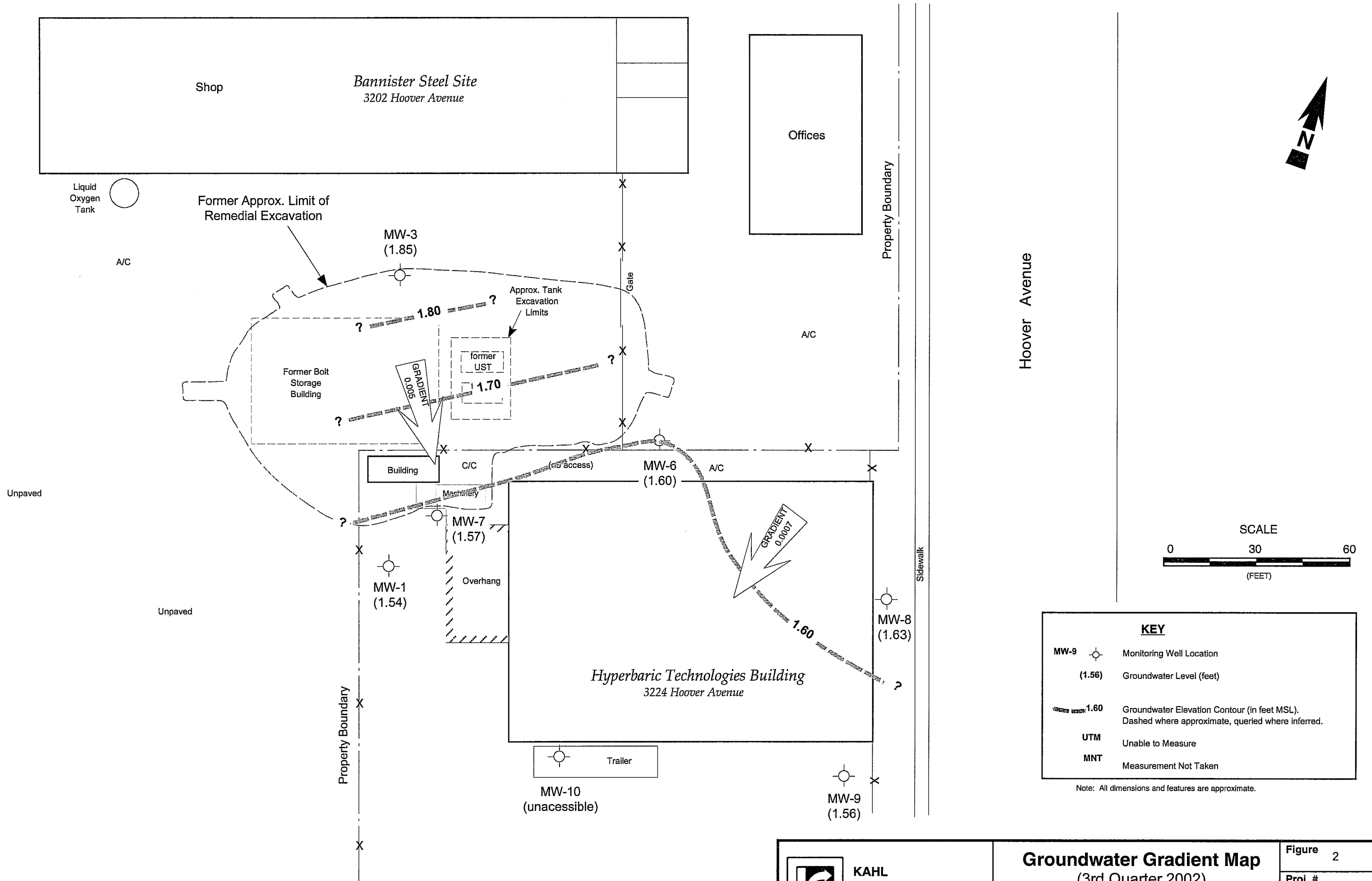
**g. Sample Management.**

After each sample was collected, it was labeled with the sample and project numbers, date, time of collection, project number, and technician identification. The information was recorded in a sample log and on the chain-of-custody. All water samples were immediately stored in an ice chest cooled with “blue ice” pending same-day shipment to the laboratory. Barring same-day delivery, samples are held until transport and delivery in refrigerated storage at the KES offices. The samples were transported and transferred under complete chain-of-custody documentation.





 <b>KAHL ENVIRONMENTAL SERVICES</b>	<b>Site Plan</b>		<b>Figure</b> 1
	Bannister Steel, Inc. 3202 & 3224 Hoover Avenue National City, California		<b>Proj. #</b> 01-1480-2
			<b>Drwg date</b> 5-28-02



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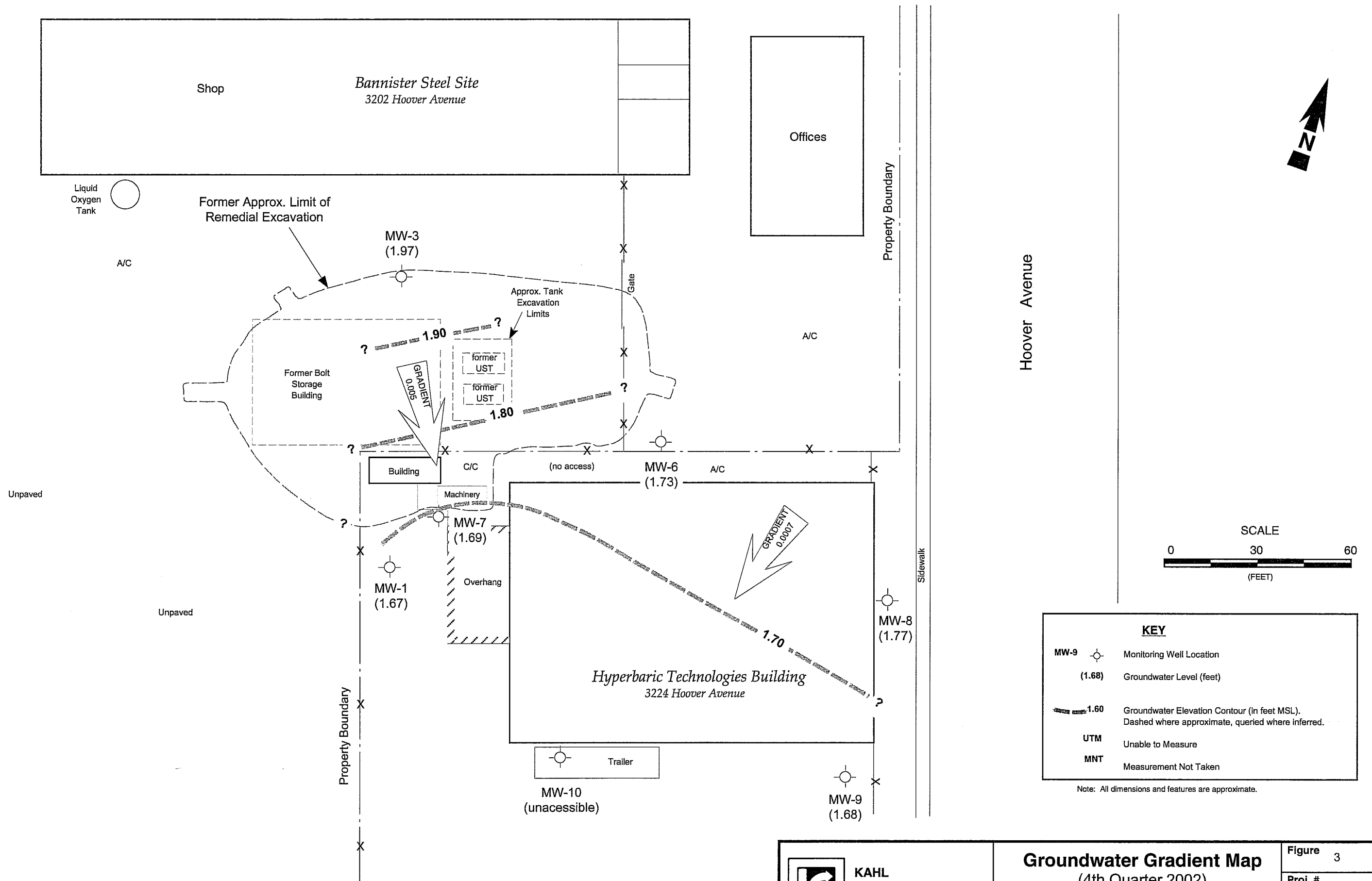
## Groundwater Gradient Map

(3rd Quarter 2002)  
3202 & 3224 Hoover Avenue  
National City, California

Figure 2

Proj. #  
01-1480-2

Drwg date  
2-11-03



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## Groundwater Gradient Map

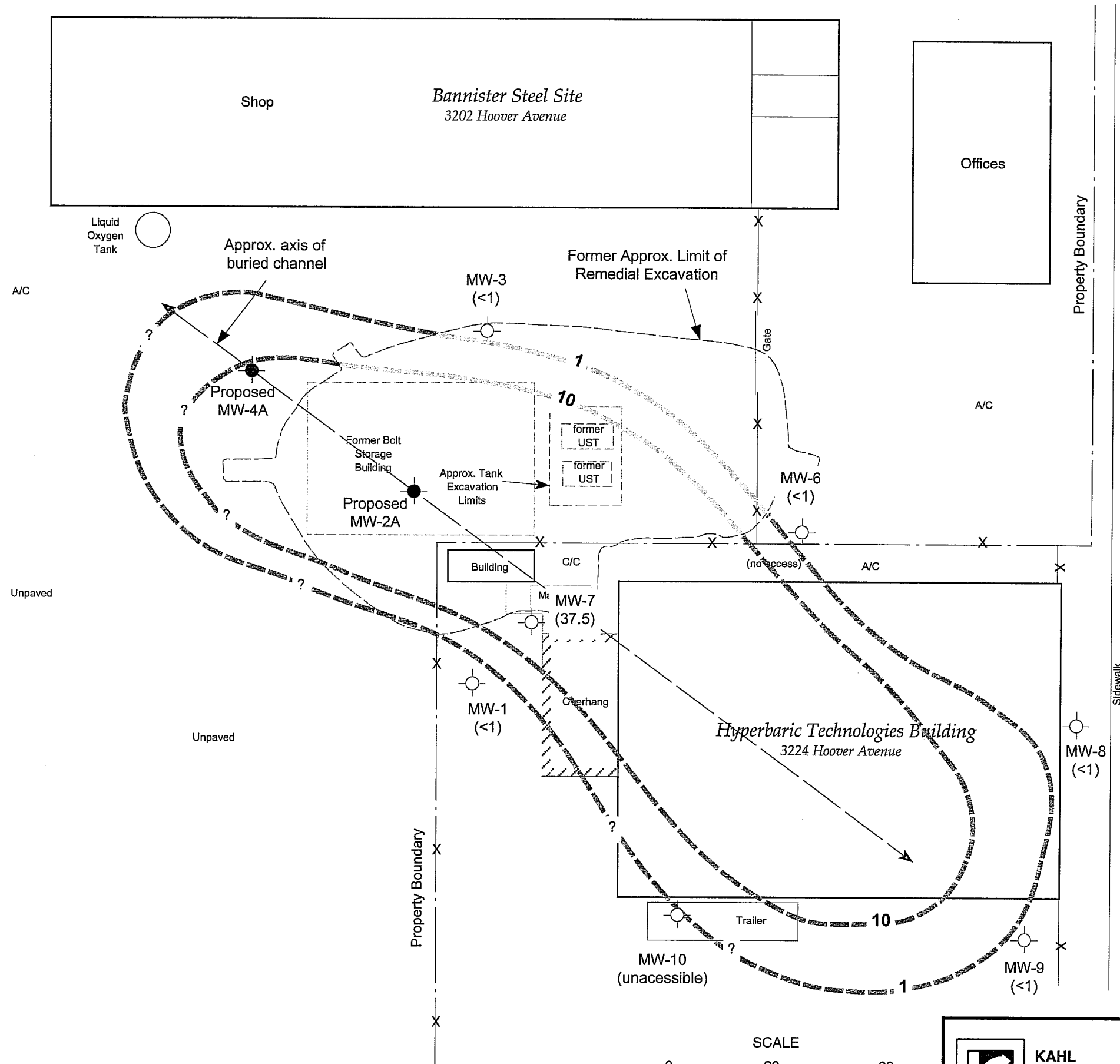
(4th Quarter 2002)  
3202 & 3224 Hoover Avenue  
National City, California

Figure 3



Proj. #  
01-1480-2

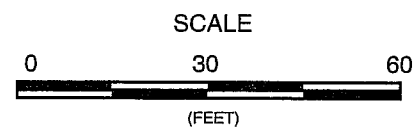
Drwg date  
3-4-03





# **KEY**

- MW-7**  Monitor well location
- (37.5)** Concentration of benzene in groundwater, in micrograms per liter ( $\mu\text{g/l}$ )  
< = below laboratory quantification limit.
- 10**  Contour line showing equal concentration of benzene in groundwater in  $\mu\text{g/l}$ .  
Dashed where approximate, queried where inferred
- NA** Not analyzed



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**Benzene Impact Map**  
(4th Quarter 2002)  
Bannister Steel, Inc.  
3202 & 3224 Hoover Avenue  
National City, California

**Figure 5**  
**Proj. #**  
01-1480-2  
**Drwg date**  
3-4-03

**TABLE 1**  
**SUMMARY of WELL CONSTRUCTION DATA**  
Bannister Steel, Inc.

<b>Well ID</b>	<b>Date of Construction</b>	<b>Casing Type</b>	<b>Casing Size</b>	<b>Survey Elev. (feet)</b>	<b>Screen Type (inches)</b>	<b>Screen Interval (feet bgs)</b>	<b>Borehole Diameter</b>
OW-1 (destroyed)	June 1998	PVC	4 inch	10.13	unknown	unknown	Excavation pit
MW-1	September 1991	Sched 40 PVC	4 inch	10.52*	0.020 slot	5 to 20	10 inch
MW-2 (destroyed)	March 1997	Sched 40 PVC	4 inch	10.26	0.020 slot	5 to 20	10 inch
MW-3	March 1997	Sched 40 PVC	4 inch	10.78*	0.020 slot	5 to 20	10 inch
MW-4 (destroyed)	March 1997	Sched 40 PVC	4 inch	10.00	0.020 slot	5 to 20	10 inch
MW-6	January 1999	Sched 40 PVC	4 inch	10.89*	0.020 slot	8 to 18	10 inch
MW-7	January 1999	Sched 40 PVC	4 inch	10.83*	0.020 slot	8 to 18	10 inch
MW-8	April 1999	Sched 40 PVC	4 inch	10.84*	0.020 slot	7 to 17	8 inch
MW-9	April 1999	Sched 40 PVC	4 inch	10.51*	0.020 slot	7 to 17	8 inch
MW-10	April 1999	Sched 40 PVC	4 inch	9.61	0.020 slot	7 to 17	8 inch

Notes:

- Bgs = below ground surface
- Survey Elev. = Survey elevations relative to top of casing arbitrarily established as 10.00 feet of relative elevation for MW-4.
- \* = All existing wells surveyed to the Mean Sea Level datum using a licensed land surveyor on 3-11-02

**TABLE 2**  
**GROUNDWATER LEVEL MEASUREMENTS**  
Bannister Steel, Inc.

Well ID	MP Elevation (feet)	Date	Depth to Water (feet)	Free Product Thickness (inches)	Water Level Elevation (feet)
MW-1	9.71	03/19/97	8.58	0.00	1.13
	9.71	03/06/98	8.28	0.00	1.43
	9.73	02/26/99	8.73	0.00	1.00
	9.73	06/02/99	8.86	0.00	0.87
	9.73	10/04/00	8.78	0.00	0.95
	9.73	03/26/01	8.86	0.00	0.87
	9.73	06/18/01	8.97	0.00	0.76
	10.52	03/19/02	9.34	0.00	1.18
	10.52	06/21/02	9.17	0.00	1.35
	10.52	09/23/02	8.98	0.00	1.54
	<b>10.52</b>	<b>12/30/02</b>	<b>8.85</b>	<b>0.00</b>	<b>1.67</b>
MW-2	10.26	03/19/97	8.90	0.00	1.36
	10.26	03/06/98	8.42	0.00	1.84
	10.26	02/26/99	9.12	0.00	1.14
	10.26	06/02/99	9.02	0.00	1.24
	10.26	10/04/00	9.11	0.00	1.15
	10.26	03/26/01	9.17	0.00	1.09
	10.26	06/18/01	MNT	0.00	NA
<b>Well destroyed on June 20, 2001</b>					
MW-3	10.11	03/19/97	8.70	0.00	1.41
	10.11	03/06/98	8.15	0.00	1.96
	10.11	02/26/99	8.76	0.00	1.35
	10.11	06/02/99	8.75	0.00	1.36
	10.11	10/04/00	8.85	0.00	1.26
	10.11	03/26/01	8.89	0.00	1.22
	10.11	06/18/01	9.02	0.00	1.09
	10.78	03/19/02	9.17	0.00	1.61
	10.78	06/21/02	9.11	0.00	1.67
	10.78	09/23/02	8.93	0.00	1.85
	<b>10.78</b>	<b>12/30/02</b>	<b>8.81</b>	<b>0.00</b>	<b>1.97</b>
MW-4	10.00	03/19/97	8.32	0.00	1.68
	10.00	03/06/98	7.72	0.00	2.28
	10.00	02/26/99	8.45	0.00	1.55
	10.00	06/02/99	8.28	0.00	1.72
	10.00	10/04/00	8.53	0.00	1.47
	10.00	03/26/01	8.47	0.00	1.53

**TABLE 2 (Continued)**  
**GROUNDWATER LEVEL MEASUREMENTS**  
Bannister Steel, Inc.

Well ID	MP Elevation (feet)	Date	Depth to Water (feet)	Free Product Thickness (inches)	Water Level Elevation (feet)
MW-4	10.00	06/18/01	8.56	0.00	1.44
<b>Well destroyed on June 20, 2001</b>					
MW -6	10.01	02/26/99	8.84	0.00	1.17
	10.01	06/02/99	9.12	0.00	0.89
	10.01	10/04/00	9.08	0.00	0.93
	10.01	03/26/01	9.20	0.00	0.81
	10.01	06/18/01	9.28	0.00	0.73
	10.89	03/19/02	9.61	0.00	1.28
	10.89	06/21/02	9.45	0.00	1.44
	10.89	09/23/02	9.29	0.00	1.60
	<b>10.89</b>	<b>12/30/02</b>	<b>9.16</b>	<b>0.00</b>	<b>1.73</b>
MW - 7	10.02	02/26/99	8.86	0.00	1.16
	10.02	06/02/99	9.14	0.00	0.88
	10.02	10/04/00	9.03	0.00	0.99
	10.02	03/26/01	9.16	0.00	0.86
	10.02	06/18/01	9.26	0.00	0.76
	10.83	03/19/02	9.60	0.00	1.23
	10.83	06/21/02	9.45	0.00	1.38
	10.83	09/23/02	9.26	0.00	1.57
	<b>10.83</b>	<b>12/30/02</b>	<b>9.14</b>	<b>0.00</b>	<b>1.69</b>
MW - 8	10.01	04/26/99	8.58	0.00	1.43
	10.01	06/02/99	9.12	0.00	0.89
	10.01	10/04/00	9.00	0.00	1.01
	10.01	03/26/01	9.10	0.00	0.91
	10.01	06/18/01	9.21	0.00	0.80
	10.84	03/19/02	9.61	0.00	1.23
	10.84	06/21/02	9.42	0.00	1.42
	10.84	09/23/02	9.21	0.00	1.63
	<b>10.84</b>	<b>12/30/02</b>	<b>9.07</b>	<b>0.00</b>	<b>1.77</b>
MW - 9	9.68	04/26/99	8.44	0.00	1.24
	9.68	06/02/99	8.84	0.00	0.84
	9.68	10/04/00	8.71	0.00	0.97
	9.68	03/26/01	8.87	0.00	0.81
	9.68	06/18/01	MNT	0.00	NA
	10.51	03/19/02	9.29	0.00	1.22



**TABLE 2 (Continued)**  
**GROUNDWATER LEVEL MEASUREMENTS**  
 Bannister Steel, Inc.

Well ID	MP Elevation (feet)	Date	Depth to Water (feet)	Free Product Thickness (inches)	Water Level Elevation (feet)
MW - 9	10.51	06/21/02	9.15	0.00	1.36
	10.51	09/23/02	8.95	0.00	1.56
	<b>10.51</b>	<b>12/30/02</b>	<b>8.83</b>	<b>0.00</b>	<b>1.68</b>
MW - 10	9.61	04/26/99	8.42	0.00	1.19
	9.61	06/02/99	8.78	0.00	0.83
	9.61	10/04/00	UTM	0.00	NA
	9.61	03/26/01	UTM	0.00	NA
	9.61	06/18/01	UTM	0.00	NA
	9.61	03/19/02	UTM	0.00	NA
	9.61	06/21/02	UTM	0.00	NA
	9.61	09/23/02	UTM	0.00	NA
	<b>9.61</b>	<b>12/30/02</b>	<b>UTM</b>	<b>0.00</b>	<b>NA</b>
OW-1	10.13	06/02/99	8.74	0.00	1.39
	10.13	10/04/00	MNT	0.00	NA
	10.13	03/26/01	MNT	0.00	NA
	10.13	06/18/01	9.00	0.00	1.13
<b>Well destroyed on June 20, 2001</b>					

Notes:

MP ELEV = Measuring point elevation, relative elevation based on MW-4 at 10 feet above mean sea level.

On March 11, 2002, all existing & accessible wells surveyed to the Mean Sea Level datum using a licensed land surveyor.

DTW = Depth to water from top of casing

UTM = Unable to measure

NA = Not applicable

MNT = Measurement not taken

Most recent data in bold for ease of review

WL change	x
-0.08	
-0.11	
0.42	0.39
0.17	0.56
0.19	1.54
0.13	1.67

-0.06  
#VALUE!  
#VALUE!

-0.04	
-0.13	
0.52	0.94
0.06	1.00
0.18	1.85
0.12	1.97

-0.12	
-0.08	
0.55	0.40
0.16	0.56
0.16	1.60
0.13	1.73

-0.13	
-0.10	
0.47	0.42
0.15	0.57
0.19	1.57
0.12	1.69

-0.10	
-0.11	
0.43	0.40
0.19	0.59
0.21	1.63
0.14	1.77

-0.16	
#VALUE!	
#VALUE!	0.39

#VALUE!	-9.15
0.20	#VALUE!
0.12	1.68

**TABLE 3**  
**Summary of Groundwater Analytical Results**  
Bannister Steel, Inc.

Well Number	Date	TPH-gas (µg/l)	MTBE (µg/l)	Total Lead (mg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl Benzene (µg/l)	Xylenes (µg/l)	DIPE (µg/l)	ETBE (µg/l)	TAME (µg/l)	TBA (µg/l)
OW-1	7-88	112	na	na	6100	na	na	na	na	na	na	na
OW-1	1-89	33	na	na	3700	na	na	na	na	na	na	na
OW-1	1-90	na	na	na	5450	na	na	na	na	na	na	na
OW-1	7-90	na	na	na	7800	na	na	na	na	na	na	na
OW-1	1-91	na	na	na	1800	na	na	na	na	na	na	na
OW-1	7-91	na	na	na	1600	na	na	na	na	na	na	na
OW-1	1-92	na	na	na	3300	na	na	na	na	na	na	na
OW-1	7-92	na	na	na	1400	1900	1400	4700	na	na	na	na
OW-1	1-93	na	na	na	1500	890	1800	3500	na	na	na	na
OW-1	7-93	na	na	na	6200	460	910	2000	na	na	na	na
OW-1	1-94	na	na	na	4550	2000	2200	4900	na	na	na	na
OW-1	7-94	na	na	na	8220	392	2470	3028	na	na	na	na
OW-1	1-95	na	na	na	5065	246	444	3070	na	na	na	na
OW-1	7-95	na	na	na	7330	330	1520	935	na	na	na	na
OW-1	1-96	na	na	na	4635	690	1460	1080	na	na	na	na
OW-1	7-96	na	na	na	na	671	1800	1540	na	na	na	na
OW-1	3-19-97	na	na	na	na	na	na	na	na	na	na	na
OW-1	3-6-98	na	<0.5	<0.1	4620	na	na	na	na	na	na	na
OW-1	6-18-01	40,000	<25	na	4,800	440	2,100	2,070	<50	<50	<50	1,500
Well destroyed on June 20, 2001												
MW-1	3-19-97	<500	<20	na	<0.5	<0.5	<0.5	<0.5	na	na	na	na
MW-1	3-6-98	na	<0.5	<0.1	0.9	<0.5	<0.5	<1.0	na	na	na	na
MW-1	2-1-99	<500	<20	na	<0.5	0.55	<0.5	<1.5	na	na	na	na
MW-1	10-5-00	<500	<2	na	27	<2	4.8	<2	<2	<2	<2	<10

**TABLE 3 (continued)**  
**Summary of Groundwater Analytical Results**  
Bannister Steel, Inc.

Well Number	Date	TPH-gas (µg/l)	MTBE (µg/l)	Total Lead (mg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl Benzene (µg/l)	Xylenes (µg/l)	DIPE (µg/l)	ETBE (µg/l)	TAME (µg/l)	TBA (µg/l)
MW-1	3-26-01	<500	<2	<0.01	3.4	<2	<2	<2	<2	<2	<2	100
MW-1	6-18-01	<100	<1	na	1.8	<1	<1	<1	<2	<2	<2	110
MW-1	3-19-02	<100	<1.0	na	17	<0.50	0.88	<1.0	<1.0	<1.0	<1.0	95
MW-1	6-21-02	<20	<1.0	na	6.7	<1.0	1.5	<2.0	<1.0	<1.0	<1.0	<50.0
MW-1	9-23-02	<20	<1.0	na	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<1.0	80.9
<b>MW-1</b>	<b>12-30-02</b>	<b>&lt;20</b>	<b>&lt;1.0</b>	<b>na</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;3.0</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
MW-2	3-19-97	703	<20	na	57.5	102	13.7	77.7	na	na	na	na
MW-2	3-6-98	na	<0.5	<0.1	96.5	6.0	18.5	11.5	na	na	na	na
MW-2	2-1-99	<500	<20	na	0.97	<0.5	1.5	1.9	na	na	na	na
MW-2	10-5-00	<500	<2	na	58	<2	6.6	<2	<2	<2	<2	<10
MW-2	3-26-01	<500	<2	<0.01	26	<2	2.6	<2	<2	<2	<2	<10
MW-2	6-18-01	260	<1.0	na	130	<1.0	15	<1.0	<2	<2	<2	<50
Well destroyed on June 20, 2001												
MW-3	3-19-97	<500	<20	na	<0.5	<0.5	<0.5	<0.5	na	na	na	na
MW-3	3-6-98	na	<0.5	<0.1	11.1	<0.5	5.9	<1.0	na	na	na	na
MW-3	2-1-99	<500	<20	na	7	<0.5	3.6	<1.5	na	na	na	na
MW-3	10-5-00	<500	<2	na	<2	<2	2.1	<2	<2	<2	<2	<10
MW-3	3-26-01	<500	<2	<0.01	<1	<2	2.9	<2	<2	<2	<2	<10
MW-3	6-18-01	<100	<1.0	na	<0.50	<1.0	4.6	<1.0	<2	<2	<2	<50
MW-3	3-19-02	<100	<1.0	na	<0.50	<0.50	2.3	<1.0	<1.0	<1.0	<1.0	<5.0
MW-3	6-21-02	31	<1.0	na	<1.0	<1.0	2.7	<2.0	<1.0	<1.0	<1.0	<50.0
MW-3	9-23-02	33.0	<1.0	na	<1.0	<1.0	2.26	<3.0	<1.0	<1.0	<1.0	<50.0
<b>MW-3</b>	<b>12-30-02</b>	<b>&lt;20</b>	<b>&lt;1.0</b>	<b>na</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>1.87</b>	<b>&lt;3.0</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>

**TABLE 3 (continued)**  
**Summary of Groundwater Analytical Results**  
 Bannister Steel, Inc.

Well Number	Date	TPH-gas (µg/l)	MTBE (µg/l)	Total Lead (mg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl Benzene (µg/l)	Xylenes (µg/l)	DIPE (µg/l)	ETBE (µg/l)	TAME (µg/l)	TBA (µg/l)
MW-4	3-19-97	<500	<20	na	<0.5	<0.5	<0.5	<0.5	na	na	na	na
MW-4	3-6-98	na	<0.5	<0.1	4.0	0.5	6.2	7.8	na	na	na	na
MW-4	2-1-99	<500	<20	na	42	0.54	7.5	<1.5	na	na	na	na
MW-4	10-5-00	<500	<2	na	<2	<2	5.0	<2	<2	<2	<2	<10
MW-4	3-26-01	<500	<2	<0.01	1.8	<2	3.1	<2	<2	<2	<2	<10
MW-4	6-18-01	2,200	<1.0	na	390	4.5	280	261	<2	<2	<2	<50
Well destroyed on June 20, 2001												
MW-6	1-21-99	1,200	na	na	820	0.81	150	81	na	na	na	na
MW-6	10-5-00	<500	<2	na	8.9	<2	3.8	2.1	<2	<2	<2	<10
MW-6	3-26-01	<500	<2	<0.01	53	<2	22	10	<2	<2	<2	49
MW-6	6-18-01	<100	<1.0	na	35	<1.0	12	7.2	<2	<2	<2	<50
MW-6	3-19-02	<100	<1.0	na	<0.50	<0.50	1.1	<1.0	<1.0	<1.0	<1.0	<5.0
MW-6	6-21-02	<20	<1.0	na	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<50.0
MW-6	9-23-02	22.0	<1.0	na	<1.0	<1.0	1.61	<3.0	<1.0	<1.0	<1.0	<50.0
<b>MW-6</b>	<b>12-30-02</b>	<b>&lt;20</b>	<b>&lt;1.0</b>	<b>na</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>6.56</b>	<b>&lt;3.0</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
MW-7	1-21-99	790	na	na	260	280	23	58	na	na	na	na
MW-7	10-5-00	<500	<2	na	100	<2	22	8.6	<2	<2	<2	<10
MW-7	3-26-01	<500	<2	<0.01	280	170	48	113	<2	<2	<2	<10
MW-7	6-18-01	630	<2	na	210	4.9	39	45.6	<4	<4	<4	170
MW-7	3-19-02	110	<1.0	na	110	1.1	28	9.4	<1.0	<1.0	<1.0	<5.0
MW-7	6-21-02	431	<2.0	na	107	<2.0	29.4	6.2	<2.0	<2.0	<2.0	<100.0
MW-7	9-23-02	256	<1.0	na	34.4	<1.0	18.2	2.42	<1.0	<1.0	<1.0	69.4
<b>MW-7</b>	<b>12-30-02</b>	<b>316</b>	<b>&lt;1.0</b>	<b>na</b>	<b>37.5</b>	<b>3.00</b>	<b>20.9</b>	<b>9.38</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>

**TABLE 3 (continued)**  
**Summary of Groundwater Analytical Results**  
**Bannister Steel, Inc.**

[illegible]



**TABLE 3 (continued)**  
**Summary of Groundwater Analytical Results**  
 Bannister Steel, Inc.

Well Number	Date	TPH-gas (µg/l)	MTBE (µg/l)	Total Lead (mg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl Benzene (µg/l)	Xylenes (µg/l)	DIPE (µg/l)	ETBE (µg/l)	TAME (µg/l)	TBA (µg/l)
MW-10	6-21-02	na	na	na	na	na	na	na	na	na	na	na
MW-10	9-23-02	na	na	na	na	na	na	na	na	na	na	na
<b>MW-10</b>	<b>12-30-02</b>	<b>na</b>	<b>na</b>	<b>na</b>	<b>na</b>	<b>na</b>	<b>na</b>	<b>na</b>	<b>na</b>	<b>na</b>	<b>na</b>	<b>na</b>

Notes:    mg/l    = milligrams per liter  
                  µg/l    = micrograms per liter  
                  na      = Not analyzed  
                  <      = Less than laboratory analytical detection limits for that compound  
 Most recent data in bold for ease of review

**TABLE 4**  
**Summary of Groundwater Analytical Results**  
**(RNA Parameters)**  
Bannister Steel, Inc.

Well Number	Date	Dissolved Oxygen (mg/l)	pH (pH units)	Iron (mg/l)	Sulfate (mg/l)	Sulfide (mg/l)	Sulfite (mg/l)	Nitrate-Nitrite-N (mg/l)
OW-1	3-26-01	--	--	--	--	--	--	--
OW-1	6-18-01	<1.0	6.95	0.774	750	--	4	<0.10
MW-1	3-26-01	1.5	7.07	--	--	--	--	--
MW-1	6-18-01	1.5	7.30	6.36	1,500	--	<2	<0.10
MW-1	3-19-02	--	6.75	--	--	--	--	--
MW-1	6-21-02	0.5	6.97	2.5	1,520	<0.05	--	0.37
MW-1	9-23-02	1.5	6.75	1.94	1,160	<0.05	--	<0.10
<b>MW-1</b>	<b>12-30-02</b>	<b>1.5</b>	<b>6.92</b>	<b>9.00</b>	<b>1,490</b>	<b>&lt;0.05</b>	<b>--</b>	<b>&lt;0.10</b>
MW-2	3-26-01	1.5	7.71	--	--	--	--	--
MW-2	6-18-01	1.5	7.13	2.30	800	--	<2	<0.10
MW-3	3-26-01	2.0	7.30	--	--	--	--	--
MW-3	6-18-01	1.5	7.49	2.07	930	--	<2	<0.10
MW-3	3-19-02	--	6.92	--	--	--	--	--
MW-3	6-21-02	1.5	7.01	1.1	1,070	<0.05	--	0.13
MW-3	9-23-02	1.5	7.00	1.76	1,200	<0.05	--	<0.10
<b>MW-3</b>	<b>12-30-02</b>	<b>2.0</b>	<b>7.01</b>	<b>4.39</b>	<b>1,190</b>	<b>&lt;0.05</b>	<b>--</b>	<b>&lt;0.10</b>
MW-4	3-26-01	--	7.71	--	--	--	--	--
MW-4	6-18-01	2.5	7.38	4.04	1,500	--	<2	<0.10
MW-6	3-26-01	2.5	7.54	--	--	--	--	--
MW-6	6-18-01	--	7.85	2.68	1,000	--	<2	<0.10
MW-6	3-19-02	--	7.61	--	--	--	--	--
MW-6	6-21-02	2.0	7.68	1.6	835	<0.05	--	0.10
MW-6	9-23-02	1.0	7.18	1.62	896	<0.05	--	<0.10
<b>MW-6</b>	<b>12-30-02</b>	<b>1.0</b>	<b>7.56</b>	<b>13.0</b>	<b>1,060</b>	<b>&lt;0.05</b>	<b>--</b>	<b>0.18</b>
MW-7	3-26-01	1.5	7.46	--	--	--	--	--
MW-7	6-18-01	1.5	7.72	1.37	1,100	--	<2	<0.10
MW-7	3-19-02	--	7.01	--	--	--	--	--
MW-7	6-21-02	1.5	7.49	1.0	1,330	<0.05	--	1.87
MW-7	9-23-02	1.5	6.90	1.86	1,090	<0.05	--	<0.10
<b>MW-7</b>	<b>12-30-02</b>	<b>1.0</b>	<b>7.07</b>	<b>1.71</b>	<b>1,270</b>	<b>&lt;0.05</b>	<b>--</b>	<b>&lt;0.10</b>
MW-8	3-26-01	1.5	7.22	--	--	--	--	--
MW-8	6-18-01	3.5	7.39	1.11	730	--	<2	<0.10
MW-8	3-19-02	--	6.91	--	--	--	--	--
MW-8	6-21-02	1.0	7.12	0.3	681	<0.05	--	0.12

**TABLE 4**  
**Summary of Groundwater Analytical Results**  
**(RNA Parameters) - continued**

Bannister Steel, Inc.

Well Number	Date	Dissolved Oxygen (mg/l)	pH (pH units)	Iron (mg/l)	Sulfate (mg/l)	Sulfide (mg/l)	Sulfite (mg/l)	Nitrate-Nitrite-N (mg/l)
MW-8	9-23-02	1.0	7.05	0.39	950	<0.05	--	<0.10
<b>MW-8</b>	<b>12-30-02</b>	<b>1.5</b>	<b>7.19</b>	<b>0.54</b>	<b>862</b>	<b>&lt;0.05</b>	<b>--</b>	<b>&lt;0.10</b>
MW-9	3-26-01	2.5	7.61	--	--	--	--	--
MW-9	6-18-01	2.5	7.94	9.95	1,500	--	<2	<0.10
MW-9	3-19-02	--	7.28	--	--	--	--	--
MW-9	6-21-02	2.5	7.57	5.0	1,430	<0.05	--	0.28
MW-9	9-23-02	1.5	7.58	3.34	1,850	<0.05	--	<0.10
<b>MW-9</b>	<b>12-30-02</b>	<b>2.0</b>	<b>7.68</b>	<b>6.24</b>	<b>1,670</b>	<b>&lt;0.05</b>	<b>--</b>	<b>&lt;0.10</b>

Notes: RNA = Remediation by Natural Attenuation  
mg/l = milligrams per liter  
-- = Not analyzed  
< = Less than laboratory analytical detection limits for that compound  
Most recent data in bold for ease of review